form can be most closely matched. The leaf of the former shown in Fig. 2 is not nearly so like the fossil as others of that species which I was unable to obtain for illustrating.

The fossil record of *Meliosma* is very incomplete, largely, I believe, because paleobotanists have been relatively ignorant of the foliar characters of some of the tropical families. The present Wilcox species is the oldest known leaf specimen, although Reid and Chandler[6] have described three species based on endocarps from the London clay of southeastern England (Sheppey), which is almost exactly the same age as the Wilcox (Ypresian). There is also a fruit from the Pliocene of Reuver and Swalmen[7] in Holland, which completes the known European records.

The additional American records include a fruit described by the present writer[8] from the lower Miocene of California and three species based upon leaves described by Chaney and Sanborn[9] from the upper Eocene Goshen flora of Oregon. One of these—*Meliosma goshenensis* Chaney and Sanborn[10]—is the most similar to the Wilcox species. These authors compare this species particularly with the existing *Meliosma panamensis* Standley, although calling attention to certain similarities in the living Chinese *M. rigida* S. & Z. and *M. simplicifolia* Roxb.

ZOOLOGY.—*A new allocreadiid trematode,* Podocotyle shawi, *n. sp., from the silver salmon.*[1] ALLEN MCINTOSH, U. S. Bureau of Animal Industry.

The species described in this paper is based on 5 specimens that were recently forwarded for identification to the Bureau of Animal Industry by Dr. J. N. Shaw, Oregon State Agricultural College, Corvallis, Oreg. This species belongs to the genus *Podocotyle,* but since it does not appear to agree with any known member of the genus, it is regarded as new and is described below.

Podocotyle shawi, n. sp.

Description.—Body elongated, 4.1 mm long by about 1.1 mm wide, slightly constricted at equator, broadest at region of testes, anterior end more attenuated than posterior end; cuticula without spines. Oral sucker terminal, 310μ by 250μ; cuticula of inner wall of oral sucker appearing as if

[6] REID and CHANDLER. *London clay flora, British Museum.* 1933.
[7] C. and E. M. Reid. *Pliocene flora of the Dutch Prussian border,* p. 113, pl. 11, figs. 19–21, 24, 25. 1915.
[8] BERRY, E. W. Journ. Washington Acad. Sci. **19**: 99, figs. 1, 2. 1929.
[9] CHANEY and SANBORN. Carnegie Inst. Washington Publ. **439**: 84. 1933.
[10] *Ibid.* 84, pl. 28, figs. 2, 3; pl. 29, figs. 1–3.
[1] Received March 8, 1939.

provided with rasplike scales. Acetabulum pre-equatorial, 500μ by 450μ. Prepharynx about 150μ by 150μ; pharynx 200μ in diameter; esophagus 400μ by 50μ; intestinal crura ending near posterior end of body. Excretory pore at posterior end of body, opening into an elongated bladder. Testes from ovoid to almost spherical in outline, tandem and contiguous, situated in posterior half of body; anterior testis 380μ by 600μ, posterior testis 450μ by 550μ. Cirrus sac 1.7 mm long by about 100μ wide, extending along median line from near region of ovary, bending to pass acetabulum laterally to area

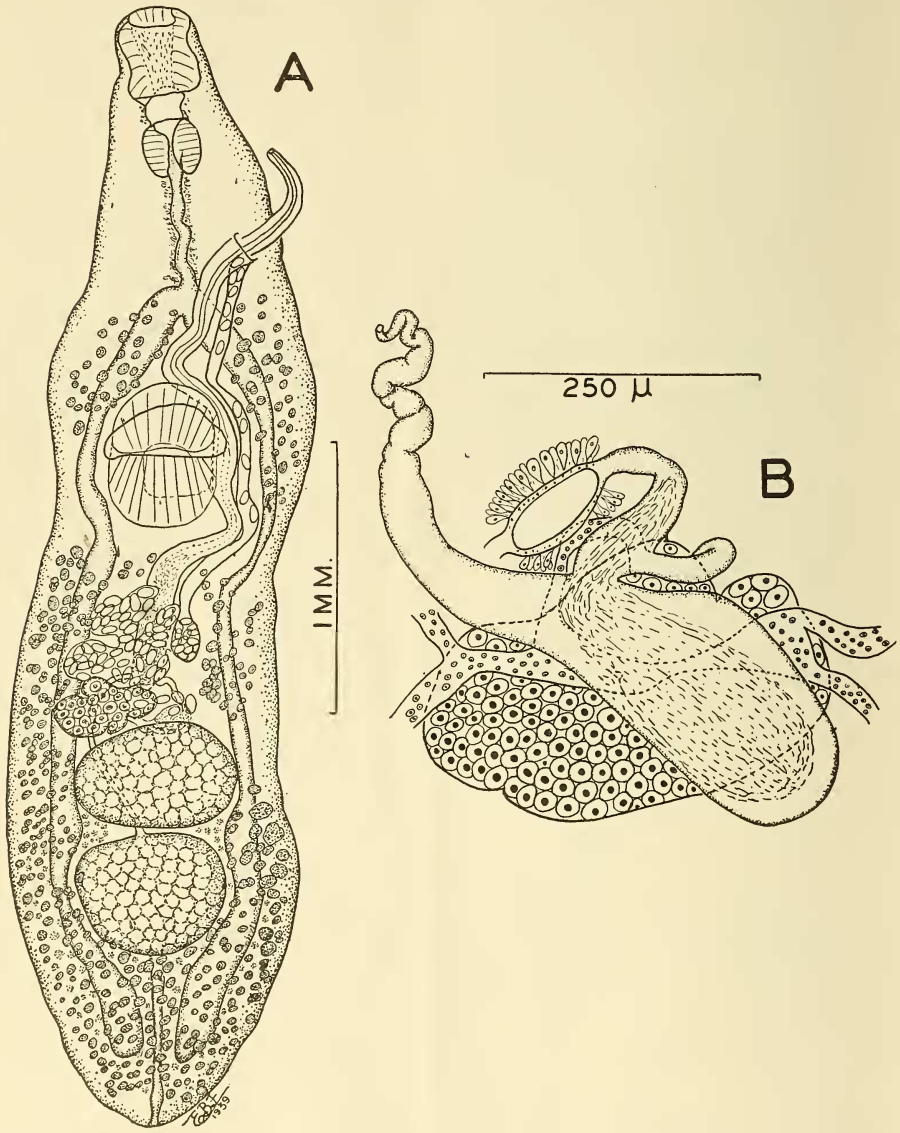

Fig. 1.—*Podocotyle shawi*, n. sp. A, Ventral aspect. B, Ovarian complex, dorsal aspect.

between acetabulum and cecal fork and then continuing diagonally to genital pore; cirrus spiny, protruding in type specimen beyond body margin. Genital pore located laterally about halfway between median line and margin of body in zone of posterior third of esophagus. Ovary lobed, 200μ by 380μ, median or lateral in position, pretesticular. Seminal receptacle dorsal to ovary, about 150 to 300μ; Laurer's canal extending anteriorly from large seminal receptacle. Vitellaria extending from level of intestinal fork to beyond cecal tips, usually with an interruption at basal level of acetabulum. Uterus between ovary and acetabulum, consisting of few coils. Metraterm elongated, to left of cirrus sac. Eggs about 78μ by 55μ, yellowish brown.

Habitat.—Intestine of silver salmon, *Oncorhynchus kisutch* (Walbaum).

Distribution.—Alsea River, Oregon, U. S. A.

Specimens.—U. S. N. M. Helm. Coll. nos. 43427 (type) and 43428 (paratypes).

Remarks.—In addition to the type specimens from *Oncorhynchus kisutch* there are several specimens in the Helminthological Collection of the Bureau of Animal Industry from the cutthroat trout (*Salmo clarkii* Richardson) and the steelhead trout (*Salmo gairdnerii* Richardson) that apppear to be identical with the specimens on which the new species is based; these specimens were also collected by Dr. Shaw from the same locality.

Podocotyle shawi differs from most of the other members of the genus in that the vitellaria on each side extend in front of the acetabulum to the level of the cecal fork. In a few species of the genus *Podocotyle*, namely, *P. atomon* var. *dispar* Nicoll, 1919, *P. lanceolata* Price, 1934, and *P. pennelli* Leiper and Atkinson, 1914, some few vitelline follicles, usually only on the right side, are present in front of the acetabulum; however, in these three species the cirrus sac is short in comparison with the elongated cirrus sac of *P. shawi*.

Recent contributions to our knowledge of the genus *Podoctyle* are to be found in papers by Price, 1934 (Smithsonian Misc. Coll. **91**: 1–8); McFarland, 1936 (Journ. Biol. Board Canada **2**: 335–347); and Park, 1937 (Journ. Parasit. **23**: 405–422). In the last-named paper a key to the species of the genus *Podocotyle* is given.